

COX Rapid Heat™

Rapid Heat Sterilizers with 6, 8, and 12 Minute Sterilization Cycle Times

USER MANUAL

MODELS: COX – 115V-N

COX – 220V-N

COX – 115V-R

COX – 220V-R



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RECOMMENDATIONS

Read the entire instruction manual *before* installation or operation of the COX Rapid Heat Transfer Sterilizer. It will help you to understand the operation of the system, how various sub assemblies work together and the operating sequence of the controls.

**WARNING: NEVER ATTEMPT TO PERFORM ANY ELECTRICAL TROUBLESHOOTING
ADJUSTMENT(S) OR SERVICE(S) UNLESS YOU ARE A QUALIFIED ELECTRICIAN,
ELECTRONICS TECHNICIAN OR FACTORY TRAINED SERVICE TECHNICIAN**

IMPORTANT SAFEGUARDS

When using your COX Rapid Heat Transfer Sterilizer, these basic safety precautions should be followed:

1. Read and understand all instructions.
2. Care must be taken to avoid burns from touching hot parts.
3. Do not operate this appliance with a damaged cord or if appliance has been dropped or damaged until it has been examined by a qualified service technician.
4. Do not let power cord hang over edge of table or counter or touch hot surfaces.
5. An extension cord should not be used with this unit. The unit should be plugged directly into a power outlet. Only use a properly grounded fuse/breaker protected outlet (110V, 60 cycles, or a 220/240V, 50 cycles). A separate circuit is recommended.
6. To protect against electrical shock hazard, do not immerse this appliance in water or other liquids.
7. To avoid electrical shock hazard, do not disassemble this appliance. Call a qualified service technician when service or repair work is required. Incorrect reassembly can cause electric shock hazard.
8. Do not lift unit by drawer handle or drawer opening in front of unit. Hold securely by the bottom when lifting or moving unit.

SAVE THESE INSTRUCTIONS

COX STERILIZERS

The Cox Rapid Heat Transfer Sterilizer was invented by Keith Cox. The technology used in the Cox sterilizer represents significant advancement in dry heat sterilization. We are confident you will find it a valuable and cost saving addition to your practice. The Cox sterilizer* is intended for indoor use in hospitals and dental, orthodontic and health care facilities.

ACCESSORIES

The Cox sterilizer comes equipped with one drawer, the removable basket for the drawer, a tool for changing baskets, and a cooling rack upon which to place the hot baskets. Depending on the size of your practice, you may wish to purchase additional baskets and drawers. Also included are an instrument rack, and a mesh basket (burr holder) for sterilizing small/lightweight items.

OPTIONAL HAND PIECE DRAWER

An optional drawer, which is ideal for heat-processing hand pieces, is also available. The drawer is designed to channel the sterilizer's airflow into the hand piece's air and water lines (see page 4 for hand piece sterilization instructions).

To order the drawer (P/N H-18-100CS) call CPAC at **(585) 382-3223**.

MATERIALS INTEGRITY

Tests have been conducted on various surgical and dental instruments as to compatibility with the 375°F (190°C) temperatures. Generally, medical and dental stainless and carbon steel hand instruments are safe in the Cox sterilizer. Caution should be used with plastic and rubber goods. When in doubt, consult the instrument manufacturer.

CAUTIONS

- During operation, the exterior surface of the sterilizer remains comfortable to the touch; however the interior of the drawer and the sterilized instruments will be hot. Use only the handle to carry the drawer. Caution should be taken when handling hot instruments. Optional Cooling Rack is available.
- The sterilizer is designed for use with metal instruments. While many new plastics, Teflon and rubber products can be used in a high temperature environment, extreme care should be used in sterilizing these materials until compatibility has been confirmed.
- When sterilizing packaged instruments, use only dry heat packaging material suitable for 375°F (190°C) temperatures.
- Instruments that have been wiped with alcohol **must** be allowed to dry before being placed in the sterilizer.
- **Use only dry heat wraps and pouches.**

*The Cox Sterilizer is non-patient care equipment.

SAFETY NOTES CONCERNING TEMPERATURE

The temperature in the Cox sterilizer is controlled by computer logic, which precisely maintains temperature throughout the sterilizer chamber. The temperature control is extremely sensitive and maintains 375° F (190° C).

After room temperature instruments are placed in the sterilizer, the temperature may drop a few degrees depending on the size of the load. If the temperature drops below 372° F (189° C), the cycle will not begin until 375° F (190° C) has been reestablished.

During warm up, the temperature read out will not display in the temperature window until 260° F (127°C) has been reached.

It is important for the drawer to be in the sterilizer at all times during operation, otherwise the heating element will continually operate to compensate for the lower temperature caused by room temperature air entering the sterilizer.

Do not open the drawer during a sterilization cycle. Also, do not add an instrument during a cycle, as it may not be sterilized.

OPERATING INSTRUCTIONS

TO START THE DAY

Before turning the sterilizer on, remove the drawer and visually inspect the chamber. Reinsert the drawer into the sterilizer and push and release the ON STANDBY/OFF button, and allow the sterilizer to heat to 375° F (190° C). This will take about 12 minutes.

The temperature read out will begin at 260° F (127° C).

NOTE: When pressing the sterilizer buttons, do not hold them down for any length of time as this will lead to an E-12 Error Code (see Error Codes section on page 7).

The sterilizer is very energy efficient and should be left on all day, as its electrical consumption is minimal.

Before beginning a sterilization cycle, be sure instruments are clean and free of debris (for information about which instruments can be safely sterilized see Materials Integrity – page 4).

TO STERILIZE

Instruments which are to be sterilized in Cycles I and II, need not to be dried prior to placing them in the sterilizer, however instruments which are packaged for Cycle III must be dried before packaging.

Instruments that have been placed in a holding, ultrasonic, or cold chemical disinfectant solution must be thoroughly rinsed before sterilization.

Failure to thoroughly remove extraneous agents prior to sterilization could lead to surface staining of instruments.

CYCLE I – 6 MINUTES

Unwrapped Instruments Sterilization Instructions

To sterilize unwrapped instruments, place them in the drawer, insert the drawer in the sterilizer, push and release the Cycle I button.

Be sure to place burs, diamonds and other small items in the accessory mesh basket. At the end of 6 minutes, a beep will sound and a “6 C” will appear in the time window on the face of the sterilizer indicating the cycle has been completed.

Immediately after removing the drawer with the sterilized instruments remove the hot basket from the drawer and place it on the cooling rack using the basket removal tool. The basket containing the sterilized instruments may continue to cool on the cooling rack.

CYCLE II – 8 MINUTES

Hand Piece Sterilization Instructions

To sterilize air rotor hand pieces or medical drills with internal tubing, the following protocol should be used:

- Clean the hand piece (flush water lines by running the hand piece for 30 seconds); thoroughly scrub with detergent and water to remove adherent material. Remove old lubricant and debris from turbine head by spraying a hand piece cleaner/solvent into the air drive.
DO NOT USE A CLEANER/LUBRICANT.

- Place thoroughly clean hand pieces in the drawer.
NOTE: If the optional hand piece drawer has been purchased, it can be used in lieu of the standard drawer. Simply lay the hand pieces in the mesh notches in the drawer and fit the connector end of the hand piece onto the circular opening at the end of the drawer.

To sterilize hand pieces, select Cycle II. When the beep sounds and an “8 C” appears in the time window at the end of the 8 minutes, promptly remove and cool the instruments and insert the drawer with the other basket into the sterilizer. Remember to lubricate the hand piece prior to use.

CYCLE III – 12 MINUTES

Wrapped Instruments Sterilization Instructions

To sterilize packaged instruments, dry instruments before packing and place no more than 6 packages on the accessory instrument rack. Place the rack in the drawer, insert the drawer in the sterilizer and push release Cycle III button. At the end of 12 minutes, a beep will sound and a “12 C” will appear in the window indicating the cycle is complete. Remove and cool the instruments. As a reminder, be sure to use dry heat compatible bagging material.

TO END THE DAY

Push and release the ON STANDBY/OFF button. The sterilizer will go into standby mode while the cooling fan operates for 10 minutes.

At the end of ten minutes, the sterilizer will automatically shut off. If the sterilizer is connected to a wall outlet controlled on/off switch, do not turn the switch off, or in any way disrupt the power supply while sterilizer is in cool down mode.

MAINTENANCE – SERVICE

The Cox sterilizer is designed for minimum and easy service. It is constructed of high quality stainless steel, which may be cleaned with mild soap and a damp cloth or any non-abrasive stainless steel cleaner. Unit can be externally disinfected with the disinfectant of your choice.

All of the common components used in the sterilizer's construction are long life, heavy-duty parts that require no maintenance. If anything needs to be replaced, an authorized service representative should be called or call CPAC at **(585) 382-3223**.

ERROR CODES

Any failure in performance will be signaled by an error code.

If one of the following error codes appears, unplug the sterilizer, wait several seconds and then plug it back in. This will reestablish the error detect logic and will eliminate false error codes that may occur. If the error code persists, call you authorized service representative or CPAC at **(585) 382-3223**.

Process Failures:

- | | |
|------|----------------|
| E-10 | EPROM failure |
| E-11 | RAM failure |
| E-12 | Switch failure |
| E-13 | Timing failure |

Temperature Probe:

- | | |
|------|--------------|
| E-20 | Open probe |
| E-21 | Thermocouple |

Heater Drive:

- | | |
|------|------------|
| E-30 | Over heat |
| E-31 | Under heat |

BIOLOGICAL TESTING

The American Dental Association, United States Air Force, Joint Commission of Accreditation of Hospitals, and the Centers for Disease Control recommend biological indicator tests to verify the sterilizer's performance.

For monitoring dry heat, biological indicators containing *Bacillus atrophaeus* should be used. Spore strips, as well as test services are widely available through universities and commercial services.

The following spore strip is recommended:

1. Weight the spore strip envelope with a jumbo paper clip.

NOTE: Be careful not to puncture the envelope.

2. Place the weighted strip in the drawer.
3. With the sterilizer operating at 375° F (190° C), place drawer containing the spore strip in the sterilizer.
4. Start the test cycle by starting Cycle I, II or III.
5. When the beep sounds, remove the spore strip for culturing.

UNIT ELECTRICAL RATINGS

MODELS COX-115V-N & COX -115V-R

120 VAC, 60Hz, 12 Amps

MODELS COX-220V-N & COX-220V-R

220 VAC, 50Hz, 8 Amps

ENVIRONMENTAL CONDITIONS

The COX Rapid Heat Transfer Sterilizer is designed for indoor use with the following conditions:

- Temperature Range of 5°C to 40° C (41°F to 104°F)
- Maximum Relative Humidity of 80% up to 31°C (88°F). Decreasing linearly to 50% at 40°C (104°F).
- Pollution Degree 2 applies in accordance with IEC 664.
- Transient Over-voltage Category II applies.
- Supply Voltage not to fluctuate more than 10% (+/- 12V at 120V, +/- 22V at 220V)
- Maximum altitude of 2000 m (6562 ft).

COX STERILIZER SPARE PARTS LIST

Oct. 17, 2007

Original COX PART NUMBER	New CPAC PART NUMBER	DESCRIPTION
EMS010517-01	CX0070	Silicone Mat (6 7/8" x 7 1/2")
23-W	CX0051	Cox - Rubber Foot
225196-1	CX0047	Cox - Basket Removal Tool
47414-10	CX0052	Cox - Cooling Rack External
808224-1W	CX0071	Cox - Drawer Assy Complete
808225-3	CX0046	Cox - Basket
844150	CX0072	Cox - E Prom V.61
BLOWER-120V	CX0001	Cox - Blower Assy
COX-OPER	CX0073	Cox Operating Manual
COX-PACKAGING	CX0074	COX-PACKAGING-COMP
CS6030-A	CX0002	Cox - Hand Piece Draw Assembly Kit
POWER	CX0078	Cox - Power Cord 110V
E-1-100CS	CX0022	Cox - Membrane Switch
E-3-23-3CS	CX0024	Cox - Fuse Holder
E-3-23-6CS	CX0025	Cox - Fuse 15 Amp 250V (slow blow)
E-5-100CS	CX0079	Cox - Circuit Board Assy
	CX0097	Cox - Ophthalmology Kit (basket and 2 mats)
H-18-100CS	CX0081	Cox - Instrument Rack (Internal)
H-24-1CS	CX0031	Cox - Burr Holder
H-4-23-1CS	CX0033	Cox - Gasket Chamber
H-4-23CS	CX0034	Cox - Drawer Gasket
HEATER-120V-COM	CX0082	Cox - Heater Assembly Complete
PCOX0001	CX0087	Cox - Cooling Rack w/Fan
RC-A12M15HTB	CX0037	Cox - Muffin Fan 115V 106 CFM FAN
T-125-304-S	CX0088	Cox - Thermocouple

STATEMENT OF WARRANTY

All equipment is manufactured to exacting standards and has been tested and inspected for proper workmanship and performance before shipping.

Any parts which are defective will be repaired or replaced within a one-year period after date of shipment, provided the equipment has been used according to the instruction manual and have not been abused or tampered with.

The company will not be responsible for any damage resulting from improper installation, operator carelessness or improper operation of the equipment. The company assumes no responsibility for damage in transit and the customer should present any claim for such damages to the carrier.

This warranty gives you specific legal rights. You may also have additional rights that vary from state to state.

Any unit to be repaired under warranty must be shipped, freight prepaid, or delivered to a facility authorized to render services provided hereunder. Returned unit must be either in its original package or a similar package affording an equal degree of protection. All units must have a Return Material Authorization code (RMA) visible on the returned item. RMA's can be obtained by calling CPAC at **(585) 382-3223**.

EVERY EFFORT HAS BEEN MADE TO ENSURE THE COMPLETE ACCURACY OF THE CONTENTS OF THIS MANUAL. NO LIABILITY ARISING FROM ITS USE, HOWEVER, CAN BE ACCEPTED BY THE COMPANY, WHO RESERVES THE RIGHT, WITHOUT PRIOR NOTICE, TO ALTER THE SPECIFICATIONS, CONSTRUCTION, OR CONTENT OF ITS EQUIPMENT AT THE COMPANY'S OWN DISCRETION.